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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/771,812	01/29/2001	Wolfgang F. Ruettinger	4739	1300

7590

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EXAMINER

LANGEL, WAYNE A

ART UNIT

PAPER NUMBER

1754

DATE MAILED: 12/12/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

Applicant(s)

Examiner

Group Art Unit

771812 Ruettinger et al
Langel 1754

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☒ Responsive to communication(s) filed on 11-12-02
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-41 is/are pending in the application.
- Of the above claim(s) 24-41 is/are withdrawn from consideration.
- ☐ Claim(s) is/are allowed.
- ☒ Claim(s) 1-23 is/are rejected.
- ☐ Claim(s) is/are objected to.
- ☐ Claim(s) are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____.
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2 and 4 ☐ Interview Summary, PTO-413
- ☒ Notice of Reference(s) Cited, PTO-892 ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948 ☐ Other _____

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) The invention was described in (1) an application for patent, published under Section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8, 10-12, 14 and 16 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over van der Wal et al. No distinction

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is seen between the process disclosed by van der Wal et al., and that recited in applicant's claims 1-8, 10-12, 14 and 16. van der Wal et al. disclose a process for carrying out the water gas shift reaction in the presence of a catalyst containing mixed oxides of iron with one or more metals of the group consisting of zinc, copper, cobalt and of metals of Groups IV-VII of the Periodic Table of the Elements, wherein the mixed oxide is on a thermal stable oxidic carrier which has a specific surface area of more than 10 square meters per gram. (See the abstract and column 4, lines 32-54. van der Wal et al. specifically disclose at column 8, lines 4-15 that the thermally stable support may be aluminum oxide having a specific surface area of more than 100 square meters per gram. Accordingly claims 1-8, 10-12, 14 and 16 appear to be anticipated by van der Wal et al. In any event, it would be prima facie obvious to employ aluminum oxide having a surface area of at least 10 square meters per gram as the catalyst support for the catalyst of van der Wal et al., since van der Wal et al. suggest at column 8, lines 4-15 that aluminum oxide having such a property should be used as a support for the catalyst disclosed at column 4, lines 32-54.

Claims 20-22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over van der Wal et al. van der Wal et al. is relied upon as discussed hereinbefore. It would be prima facie obvious to modify the process of van der Wal et al. with the

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process parameters as recited in claims 20-22, since it would be within the skill of one of ordinary skill in the art to determine suitable or optimum process parameters such as the volume of carbon monoxide in the input gas stream, and the volumes of hydrogen and water. There is no evidence on record of unexpected results which would emanate from the process which includes the specific process parameters as recited in claims 20-22.

Claims 1-5 and 7-19 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Sugier et al. No distinction is seen between the process disclosed by Sugier et al., and that recited in claims 1-5 and 7-19. Sugier et al. disclose a catalyst for producing hydrogen by reaction of carbon monoxide with water, wherein the catalyst contains by weight 10 to 60% of copper oxide, 5 to 40% of zinc oxide, 1 to 20% of a rare earth metal oxide, 30-70% of aluminous cement and 0.01 to 1% of a Group VIII noble metal.

(See the Abstract and column 1, line 19 - column 2, line 18.)

The aluminous cement employed by Sugier et al. is considered to constitute a "solid high heat capacity particulate support" as recited in applicant's claims. Regarding claims 8 and 9, Sugier et al. specifically disclose cerium oxide as one of the rare earth metal oxides at column 1, lines 33-36.

Claims 1-5 and 7-19 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as

obvious over Tang et al. No distinction is seen between the process disclosed by Tang et al., and that recited in claims 1-5 and 7-19. Tang et al. disclose a catalyst suitable for the conversion of carbon monoxide with steam into carbon dioxide and hydrogen, and a process for such conversion, wherein the catalyst comprises cobalt oxide or nickel oxide as the active component, a carrier having titanium dioxide along with aluminum oxide, and a promoter which may be a rare earth element or copper. (See the Abstract and column 2, lines 24-67.) The carrier comprising titanium dioxide and aluminum oxide is considered to constitute a "solid high heat capacity particulate support", as recited in applicant's claims. Regarding claims 8 and 9, Tang et al. specifically disclose cerium oxide as one of the rare earth metal oxides at column 3, lines 30-42.

Claims 1-5, 10, 17 and 18 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lywood et al. Lywood et al. disclose a process for carrying out the water gas shift reaction in the presence of a catalyst comprising platinum and/or palladium on a refractory support, which may be impregnated with an alkali, or alkaline earth, metal compound before or after incorporation of the palladium or platinum and heated to convert the alkali, or alkaline earth, metal compound to the oxide formed. (See the Abstract and column 4, lines 20-68.) Lywood et

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al. suggest at column 3, lines 56-60 that the refractory support may constitute alumina. The refractory support, such as alumina disclosed by Lywood et al. is considered to constitute a "solid high heat capacity particulate support", as recited in applicant's claims. Moreover, the alkali or alkaline earth metal oxide disclosed at column 4, lines 57-68 of Lywood et al. is considered to constitute a "reducible metal oxide" as recited in applicant's claims.

Claims 1-23 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is indefinite as to what would constitute a "high heat capacity particulate support" or a "high strength support", since the word "high" is a relative term with no definite boundaries. In claims 20-23, it is indefinite as to whether the recited cerium oxide or chromium oxide is required to be the "reducible metal oxide" as recited in claim 1, since these claims recite the phrase "up to" the recited amounts of the cerium oxide or chromium oxide, which would literally embrace the absence of such cerium oxide or chromium oxide. Accordingly it is not clear whether claims 20-23 would embrace the absence of such cerium oxide or chromium oxide, so long as the claim still required a "reducible metal oxide" as recited in claim 1.

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The other references are made of record for disclosing various types of water gas shift catalysts for carrying out the water gas shift process.

This application apparently discloses allowable subject matter. Claim 23 would appear to avoid the prior art if incorporated into claim 1 and further amended to require the presence of cerium oxide as the "reducible metal oxide".

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wayne A. Langel whose telephone number is (703) 308-0248. The examiner can normally be reached on Monday through Friday from 8 A.M. to 3:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on (703) 308-3837. The fax phone number for this Group is (703) 305-7718.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-2351.

WAL:cdc

December 9, 2002

Wayne A. Langel
WAYNE A. LANGEL
PRIMARY EXAMINER